

EMERGENCY TREATMENT FOR ORAL DISEASES AND INJURIES

The dentist is responsible for all patient diagnosis and treatment. Certain circumstances may warrant that you, the Dental Technician, provide emergency dental treatment to a patient. An example might be when one of the following circumstances occur:

- **You are standing duty Dental Technician watch**—There is no dental officer aboard the dental clinic, the hospital, the ship, or the Fleet Marine Force where you are stationed.
- **A mass casualty situation has occurred**—The dental officer may be involved with the treatment of more serious medical injuries.

Always contact a dental officer if an emergency occurs. The dentist will indicate the treatment plan and authorize you to perform treatment. You may provide temporary treatment that provides relief from pain, combats infection, or prevents further damage to the oral structures. Always instruct your patient to come to dental sick call the next day, or make an appointment in the dental specialty for which you have treated him or her. Advise your patient to keep the appointment even if the symptoms of the condition disappear. Follow any command or department instructions on patient care.

Oral conditions are discussed in terms of symptoms and signs. A **symptom** is what a patient tells you about his or her disease or injury (for example, this person tells you of a toothache or sore gums). A **sign** is what you observe when you examine the oral structures (for example, bleeding gums, carious lesion, or heavy deposits of plaque or calculus).

EMERGENCY TREATMENT GUIDELINES

Certain emergency guidelines have been established to assist you in providing emergency treatment to your patients. In all these conditions, you should follow the emergency guidelines listed below:

- Check the patient's general physical condition.
- Question the patient and record any symptoms.

- Review patient's health history.
- Examine the patient and record signs, including the vital signs. Also check for other injuries if trauma has been found.
- Consult with the dentist and report the patient's condition.
- Request instructions from the dentist.
- Follow the treatment plan exactly.
- Record the emergency treatment provided on the Health Record, Dental, SF 603. Use the standard operating procedures (SOP) format discussed in *Dental Technician, Volume 2*, NAVEDTRA 12573, chapter 2, "Oral Examination."
- Advise the patient the treatment provided is temporary and to return for definitive treatment.

DISEASES OF THE TISSUES OF THE TEETH

An important part of your job as a Dental Technician is the ability to recognize diseases of the tissues of the teeth. We will discuss some of these diseases in the paragraphs that follow as well as give symptoms that will help you recognize these diseases.

DENTAL CARIES

Dental caries still occur in the majority of the adult population. The most common cause of dental caries is bacterial plaque, which we discussed in chapter 5.

Caries begin in the enamel, appearing as a chalky white spot. If the lesion progresses, it will continue into the dentin and eventually involve the pulp.

Symptoms

The patient may complain that the affected tooth is sensitive to hot and cold (usually cold), sweets, and pressure to biting. Sometimes the pain from an

affected tooth can manifest in a healthy, noninvolved tooth; this is called referred pain.

Signs

Upon examination you may find the following signs of an infection:

- A chalky white spot on the enamel
- Roughness on the surface of the tooth
- A dark, stained cavity
- A cavity filled with food or a spongy mass of decaying dentin

Treatment

As a part of the emergency treatment plan, you may perform the following duties:

- Perform emergency treatment guidelines.
- Gently remove all debris from the cavity with a spoon excavator as illustrated in figure 6-1.
- Flush the cavity with warm water.
- Isolate the tooth with cotton rolls or gauze.
- Carefully dry the cavity with cotton pellets as illustrated in figure 6-2.
- Mix a temporary filling (zinc oxide eugenol, IRM, etc.).
- Gently fill the cavity with the temporary filling material as illustrated in figure 6-3.
- Check the occlusion. Make sure the temporary restoration does not touch the opposing tooth.
- Instruct the patient to return for definitive treatment on the next work day.

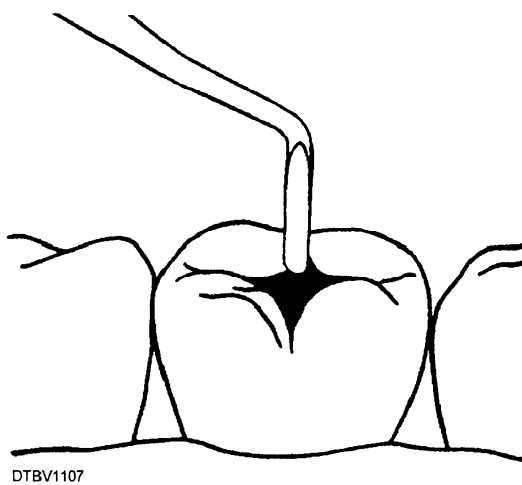


Figure 6-1.—Removing debris from the cavity.

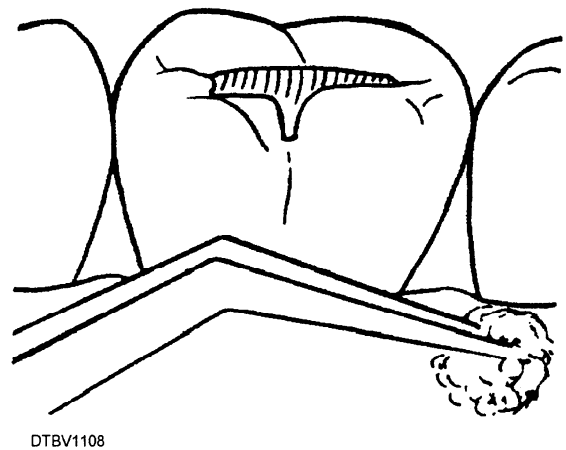


Figure 6-2.—Preparing to dry the cavity.

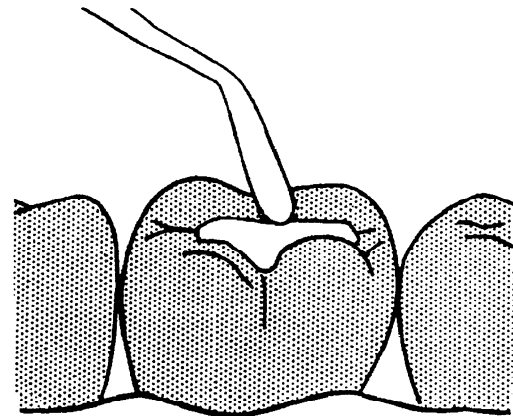


Figure 6-3.—Placing the temporary filling.

ACUTE PULPITIS

Acute pulpitis is an inflammation of the pulp caused by injury to the pulp, usually from dental caries or trauma. It is the most frequent cause of severe tooth pain. The pain is caused by the pressure of fluids building up inside the pulp chamber or root canal.

Symptoms

A patient with acute pulpitis may complain of the following:

- Spontaneous, continuous, or intermittent pain that lingers
- Piercing and pulsating pain in the affected area
- Increased pain when lying down

Signs

Upon examination for acute pulpitis, you may observe one of the following signs:

- A large carious lesion

- A large carious lesion with a pulpal exposure
- Blood or pus oozing from the pulpal exposure
- A fractured tooth or missing restoration

Treatment

As part of the emergency treatment plan for acute pulpitis, you may need to perform some of the following procedures:

- Perform emergency treatment guidelines.
- Gently remove loose debris from the cavity.
- Dry the cavity with cotton pellets.
- Pack the cavity with a cotton pellet slightly moistened with eugenol.
- Gently fill the cavity with a temporary filling material.
- Check the occlusion.
- Instruct the patient to return for definitive treatment.

PERIAPICAL ABSCESS

A periapical abscess (fig. 6-4) usually results from an infection of the pulpal tissue causing the pulp to become necrotic (die). This type of infection causes fluids and by-products to build up within the walls of the pulp chamber and root canal(s). The periapical abscess is formed when these materials escape through the apical foramen of the tooth. An area of pus and fluid accumulation forms in the bone surrounding the apex of the tooth. As the pressure builds up, a channel may form through the alveolar bone and the soft tissue. This channel is called a sinus tract. When the pus reaches the soft tissue, vestibular or facial swelling can occur. Extensive swelling is called cellulitis. Swelling that is confined to a small area at the site of a sinus tract is called a gumboil.

Symptoms

A patient with periapical abscess may complain of the following:

- Constant, throbbing pain in the affected area.
- Increased pain when chewing.
- Increased pain when lying down.
- Bad taste in the mouth.
- A gumboil.
- The tooth “feels longer” than the others.

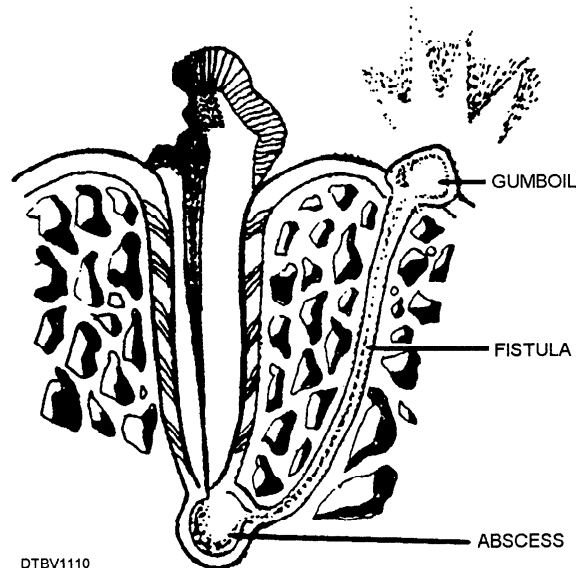


Figure 6-4.—Periapical abscess.

- Malaise.
- Tender lymph nodes.

Signs

When there is a periapical abscess, you may observe some of the following signs upon examination:

- A severe pain reaction is experienced when light pressure is applied to the affected tooth.
- A gumboil.
- Facial swelling (general or localized).
- Tooth mobility.
- An elevated temperature.
- Enlarged lymph nodes.

Treatment

To treat the periapical abscess, you should perform the following in the emergency treatment plan:

- Perform emergency treatment guidelines.
- Expose a periapical radiograph of the affected tooth. The abscess will appear as a radiolucency around the apex of the tooth.
- Drain the abscess. If the abscess is soft and pus is evident, drainage can be done without local anesthesia. Puncture the most raised portion of the abscess with an explorer.
- If a carious lesion is present, gently excavate the cavity. **NOTE: If drainage occurs through the cavity, the patient may experience a rapid relief from pain.**

- If drainage does not occur, have the patient rinse with warm saline solution for 10 minutes every 2 hours. This should help promote drainage. **NOTE: NEVER apply heat to the external surfaces of the face.**
- If drainage still does not occur, apply an ice pack to the affected area. This may reduce the patient's discomfort until the dentist can provide emergency treatment.
- When drainage is established, give the patient instructions about home care and notify the dental officer to see if a prescription for antibiotics can be called in to the pharmacy.
- Instruct the patient to return to the dental treatment facility (DTF) for definitive treatment as soon as possible.

DISEASES OF THE PERIODONTAL TISSUES

Most periodontal diseases result in the gradual recession of the tissues of the periodontium. If the disease process is not stopped, it may progress to the harder, bony tissues of the alveolar ridge and lead to the loss of teeth.

MARGINAL GINGIVITIS

Gingivitis is an inflammation of the gingival tissue. Marginal gingivitis is a relatively mild inflammation of the borders of the gingival tissue. Sometimes, the inflammation is localized; it may exist around one, two, or a group of teeth. If the condition is generalized, then it will exist around all the teeth. The most frequent cause of marginal gingivitis is the presence of bacterial plaque buildup due to lack of adequate oral hygiene.

Symptoms

A patient with acute gingivitis may complain of the following:

- Sore or swollen gums
- Bleeding gums

Signs

Upon examination for gingivitis, you may observe:

- A painful reaction or gingival bleeding when finger pressure is applied
- Red, swollen gingiva with a loss of stippling

- Heavy plaque and calculus deposits in the affected area

Treatment

To treat marginal gingivitis, include the following in the emergency treatment plan:

- Perform the emergency treatment guidelines.
- Give the patient oral hygiene instructions; refer to *Dental Technician, Volume 2*, NAVEDTRA 12573, chapter 3, "Preventive Dentistry."
- Have the patient rinse with a warm saline solution.
- Gently scale the teeth to remove soft debris and any obvious supragingival calculus.

NECROTIZING ULCERATIVE GINGIVITIS

Necrotizing ulcerative gingivitis (NUG) is a severe infection of the gingival tissue, commonly referred to as trenchmouth. It may result from untreated marginal gingivitis, poor dietary habits, smoking or alcohol consumption, a rundown physical condition of the patient, or a combination of these factors.

Symptoms

A patient may present the following symptoms when NUG is present:

- The same symptoms as that of marginal gingivitis
- A bad taste in the mouth
- Pain when eating or brushing
- Excessive bleeding

Signs

Upon examination for acute gingivitis, you may observe the following signs of NUG:

- Same as those of marginal gingivitis, but more severe.
- Heavy plaque and calculus deposits.
- Ulceration and cratering of the interdental papillae. Frequently, so much of the papillae is lost that the triangular area between the crowns of the teeth present a "punched out" appearance.
- A gray-white membrane covering the gingiva.
- A foul odor from the oral cavity.
- Pus oozing from the gingiva.
- Areas of gingival recession.

- Elevated temperature.

Treatment

Perform the emergency treatment guidelines. If the patient has an elevated temperature (101° or above), the dentist should treat the patient. If you are authorized to treat the patient, the treatment plan will be the same as for marginal gingivitis.

PERIODONTITIS

Periodontitis is an inflammation of the gingiva that involves the crest of the alveolar bone and the periodontal ligament above the alveolar crest. It usually results from untreated marginal gingivitis. It is marked by the gradual loss of attachment of the periodontal tissues. Periodontitis may affect the entire dentition or only localized areas.

Symptoms

A patient may present some of the following symptoms if periodontitis is suspected:

- A “deep, gnawing pain” in the affected area
- Itching of the “gums”
- Sensitivity to heat and cold
- Bleeding “gums”
- Food sticking between the teeth
- Loose or elongated teeth
- A toothache with the absence of caries
- An uneven bite
- Increased spacing between the anterior teeth

Signs

Upon examination you may observe the following sign of periodontitis:

- Heavy plaque and calculus deposits
- Gingival inflammation, bleeding, or discoloration (bluish-red)
- Localized or generalized gingival bleeding
- Ulcerated or cratered papilla
- Tooth mobility

Treatment

Perform the emergency treatment guidelines. The emergency treatment plan will be the same as for marginal gingivitis and NUG.

PERIODONTAL ABSCESS

A periodontal abscess is caused by an infection of the periodontal tissues. It is usually the result of a long-continued irritation by food debris, deep deposits of calculus or a foreign object packed in the sulcus or inter-proximal spaces.

The symptoms and signs for periodontal abscesses are similar to those for periapical abscesses.

Treatment

The emergency treatment plan for periodontal abscesses may include:

- Performing the emergency treatment guidelines
- Gently probing the affected area with a scaler or an explorer to establish drainage. Probe the space between the tooth surface and the gingival tissue.
- If probing does not establish drainage, have the patient apply hot saline water rinses to the affected area.

PERICORONITIS

Pericoronitis is an inflammation of the gingiva around a partially erupted tooth. During eruption, the tooth breaks through the gingiva tissue, and sometimes a small flap of tissue remains over the crown of the tooth. Debris accumulates beneath the tissue flap resulting in an acute inflammation. Inflammation can also result from constant contact between the tissue flap and the tooth in the opposing arch. Pericoronitis most often affects mandibular third molars.

Symptoms

A patient with pericoronitis may complain of the following:

- Pain when chewing
- A bad taste in the mouth
- Difficulty in opening the mouth
- Swelling in the neck or in the area of the affected tooth
- A fever

Signs

Signs of pericoronitis you may observe upon examination are as follows:

- A partially erupted tooth
- Red, inflamed tissue around a partially erupted tooth
- Pus oozing from under an overlaying tissue flap
- A painful reaction when finger pressure is applied
- Swelling in the cheek near the affected tooth
- Enlarged lymph nodes
- Elevated temperature

Treatment

In the treatment of pericoronitis, you may perform the following emergency procedures:

- Follow the emergency treatment guidelines.
- Irrigate under the tissue flap with a warm saline solution (figure 6-5).
- Gently clean the area with a sonic scaler or hand scaler.
- Instruct the patient to rinse with a warm saline solution every 2 hours.
- Contact dental officer if patient is febrile or if lymph nodes are palpable. The dental officer will determine the need to prescribe antibiotics.



Figure 6-5.—Irrigating beneath a tissue flap.

OTHER ORAL CONDITIONS

This section describes emergency conditions resulting from inflammation of the oral mucosa, postexodontic complications, and trauma to the teeth and their supporting structures.

STOMATITIS AND RECURRENT LABIAL HERPES

“Stomatitis” is a general term used to denote inflammation of the oral mucosa. Two types of stomatitis are common in dentistry, they are herpetic gingivostomatitis and aphthous stomatitis. Herpetic gingivostomatitis usually occurs on the masticatory or keratinized tissues, while aphthous stomatitis usually occurs on the lining or nonkeratinized tissue. Both conditions are marked by the formation of small blisters and ulcers on the oral mucosa.

Recurrent labial herpes is caused by a virus that produces the so-called fever blister or cold sore. They are usually found on the lip and can easily be transmitted to others through casual contact.

Symptoms

A patient with recurrent labial herpes may complain of the following symptoms:

- A painful swelling
- A fever blister, cold sore, or canker sore
- Pain when eating or drinking
- A fever, headache, or rundown feeling (for herpetic gingivostomatitis ONLY)

Signs

Upon examination of a patient with recurrent labial herpes, you may observe the following signs:

- Red, swollen areas with blisters or small craters formed in the center
- Blisters or craters covered with a grayish-white or yellowish membrane

Treatment

Perform the emergency treatment guidelines and follow instructions given by the dentist. Instruct the patient NOT to smoke, eat acidic or hot foods, or drink alcohol or use products that contain alcohol such as mouthrises that will dry out the mouth.

POSTEXTRACTION HEMORRHAGE

Postextraction hemorrhage may occur any time from a few hours to several days after the extraction of a tooth. The bleeding from the extraction site may be light or heavy. Any form of hemorrhage is considered serious, so inform the dentist as soon as possible.

Symptoms

A patient with postextraction hemorrhage may complain of the following symptoms:

- Bleeding that starts, or fails to stop, after an extraction
- Large amounts of blood in the mouth
- Weakness in conjunction with blood loss
- Blood on the pillow after sleeping

Signs

When you examine a patient for postextraction hemorrhage, you may observe the following signs:

- Blood oozing or flowing from a recent extraction site
- Blood or a large blood clot in the patient's mouth

Treatment

Perform the emergency treatment guidelines and notify the dentist. Until the dentist arrives, monitor the patient's vital signs and watch for changes in his or her condition. To help stop the bleeding, place a pack of moistened sterile gauze over the extraction site and instruct the patient to bite down firmly.

POSTEXTRACTION ALVEOLAR OSTEITIS

Postextraction alveolar osteitis is a condition commonly referred to as a dry socket. It normally results when a blood clot fails to form or washes out of the socket of a recently extracted tooth. This condition is very painful.

Symptoms

A patient who has recently had a tooth extracted may complain of the following:

- Severe constant pain that can run from the ear to the lower jaw
- Loss of blood clot

Signs

Upon examination of the patient, you may observe the following signs:

- The absence of a blood clot
- Food visible in the socket
- Alveolar bone visible in the socket
- A foul odor in the mouth
- An elevated temperature

Treatment

To provide emergency treatment for postextraction alveolar osteitis, you may perform the following precautions:

- Perform the emergency treatment guidelines.
- Gently rinse the socket with a warm saline solution.
- Moisten a small strip of iodoform gauze with eugenol. Blot the gauze dry on a 2 × 2 gauze pad. Place the strip of iodoform gauze loosely in the socket. Do not exert pressure on the socket.
- Instruct the patient to return the next day for a dressing change

FRACTURED TEETH

Pain from fractured teeth usually results from exposed dentin, or irritation of the pulp tissue as a result of trauma. You may also observe lacerations of the gingiva, lips, and cheeks. Except in a few rare cases, the dental officer will treat all tooth fractures. If authorized, the Dental Technician's primary duty is to lessen the pain and, if possible, prevent further injury to the patient until the dentist arrives to provide more definitive emergency treatment. You must be able to recognize the four different types of tooth fractures as illustrated in figure 6-6.

Symptoms (Type I—Enamel Fracture)

A patient may complain of the following:

- Rough or sharp area on a tooth
- Pain when eating or drinking
- Sensitivity to heat, cold, or air

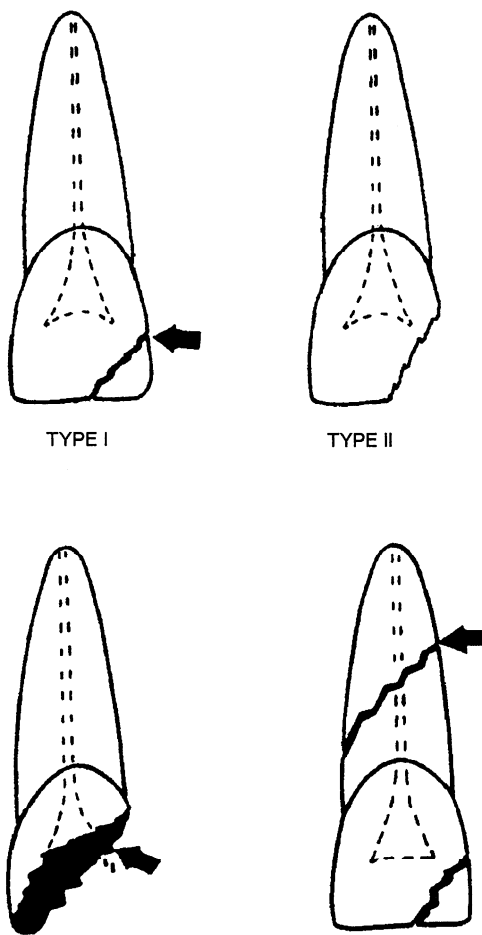


Figure 6-6.—Types of tooth fractures.

Signs

Upon examination of a type I fracture, you may observe:

- A slight chip or fracture of the tooth enamel layer only, or with possible minimal dentin involvement
- No exposure of the dentin or pulp

Treatment

Perform the emergency treatment guidelines. The following is a typical treatment plan that a dental officer might authorize you to perform to treat a type I fracture:

1. Smooth sharp edges of the chipped area with sandpaper strips or disk to eliminate irritation of the tongue and lips.
2. Carefully dry the chipped area with a cotton roll or pellets.

3. Apply small coats of cavity varnish over the chipped area with cotton forceps and cotton pellets.
4. Instruct and caution the patient not to consume hot or cold liquids and food. Extreme heat or cold may damage the tooth pulp.

Symptoms (Type II—Enamel/Dentin Fracture)

A patient with a type II tooth fracture may complain of the following:

- Very rough or sharp edges
- Severe pain from heat, cold, or air
- Toothache

Signs

Upon examination of a type II fracture, you may observe the following:

- Extensive fracture involving the enamel and dentin layers
- No pulp exposure

Treatment

Perform emergency treatment guidelines. Except in rare cases, the dental officer will provide emergency treatment. If for some reason he does not treat the patient, the dental officer could authorize the assistant to cover the exposed dentin with a temporary type paste or place a temporary crown.

The procedures for covering a type II with zinc oxide and eugenol paste or other temporary paste are as follows:

1. Isolate area with cotton rolls.
2. Carefully dry the fractured tooth off with cotton rolls or 2 x 2 gauze. (Do not use direct air with the 3-way syringe.)
3. Coat all exposed dentin with a zinc oxide and eugenol paste or other temporary material, including light cured glass ionomer cement.
4. Advise the patient that this is a temporary procedure to relieve pain and sensitivity. The coat of zinc oxide and eugenol may come off the fracture.
5. Instruct patient to eat a bland diet and avoid extremely hot and cold foods, liquids, or sticky foods, and not to chew on the fractured tooth.

Procedure for placing a temporary crown on a type II fracture:

1. Select a plastic crown form. Trim the form with scissors to adapt it to the fractured crown. Ensure that the entire fracture will be covered.
2. Also ensure the incisal edge is not in occlusion with the opposing teeth, while fitting the plastic crown.
3. Place two or three small holes in the incisal edge of the crown form with a sharp explorer.
4. Fill the crown form with a **thin** mix of calcium hydroxide or zinc oxide and eugenol.
5. Gently place the crown form over the fractured crown. You will see any excess material expressed from the holes of the incisal edge while placing the crown.
6. Remove any excess material from and around the crown with gauze and cotton pellets
7. Instruct the patient to eat a bland diet and avoid extremely hot and cold foods or liquids and sticky foods.

Symptoms (Type III—Enamel/Dentin Fracture With Pulp Exposure)

A patient with a type III tooth fracture may complain of the following:

- Severe, throbbing pain
- Very rough or sharp edges
- Severe pain from heat, cold, or air
- Inability to chew food

Signs

Upon examination of a type III fracture, you may observe:

- Extensive fracture with the pulp exposed
- Most or all of the crown is fractured off
- Bleeding from crown fracture

Treatment

Perform emergency treatment guidelines. In almost all cases of a fracture this severe, the dental officer will treat the patient. Only in rare cases would the Dental Technician treat the patient. The following is a treatment plan that the dental officer might authorize to treat a type III fracture.

1. Place a crown form over the affected tooth. Refer back to this procedure under the treatment for type II fractures. At times, it may be impossible to place a crown form over a fractured tooth. The pressure of the crown form against the pulp tissue may cause the patient pain or there may not be enough tooth structure left for retention of the crown. If this occurs, a splint rather than a crown form is placed on the tooth as shown in figure 6-7.

2. To make the splint, prepare a large mixture of zinc oxide and eugenol as described in *Dental Technician*, NAVEDTRA 12573, chapter 4, "Restorative Dentistry." Add cotton fibers from a cotton pellet to the mixture for strength. The mixture should have a dough-like consistency for molding the splint.

3. Place the splint so it covers the affected tooth and the teeth immediately adjacent to it (fig. 6-7). Ensure that the mixture is placed well up on the lingual and facial aspects of the gingival tissue. Gently compress the splint between your finger and thumb to lock it into the interproximal spaces.

4. Trim the splint from the incisal edges of the teeth. Check the occlusion to see if the splint is interfering with the patient's bite.

5. Advise the patient to let the splint harden for several hours before attempting to eat. Tell the patient to return to sick call ASAP for more definitive care.

Symptoms (Type IV—Root Fracture)

A patient with a type IV tooth fracture may complain of the following:

- Severe pain from heat, cold, air
- Inability to eat anything without severe pain
- A tooth that is moving or loose

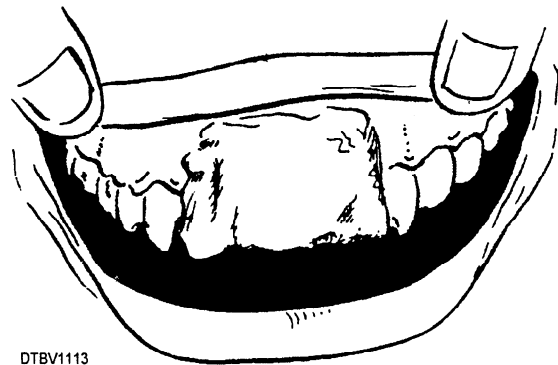


Figure 6-7.—Properly placed splint.

Signs

Upon examination of a type IV fracture, the dental officer may direct you to take a radiograph of the tooth to determine if there is a fracture of the root. You may observe:

- A fractured root (as seen in the patient's X-ray), which may be further complicated by a fracture of the crown
- Tooth mobility
- Other facial trauma associated with the accident

Treatment

Perform emergency treatment guidelines. Because of the severity, almost all cases of type IV fractures will be treated by the dental officer. Only in very rare cases, will the Dental Technician provide treatment. In such rare cases, the dental officer might authorize the DT to place a splint in the same way as for the type III fracture.

TRAUMATICALLY EXTRACTED TEETH

If a tooth has been traumatically extracted from the socket, notify the dentist as soon as possible. The dental officer may instruct you to replace the tooth back in the socket after rinsing it with sterile saline. Time is of the essence for the replantation to be a

success. Perform emergency treatment guidelines and control hemorrhaging until the dentist arrives.

FRACTURES OF THE MANDIBLE AND MAXILLA

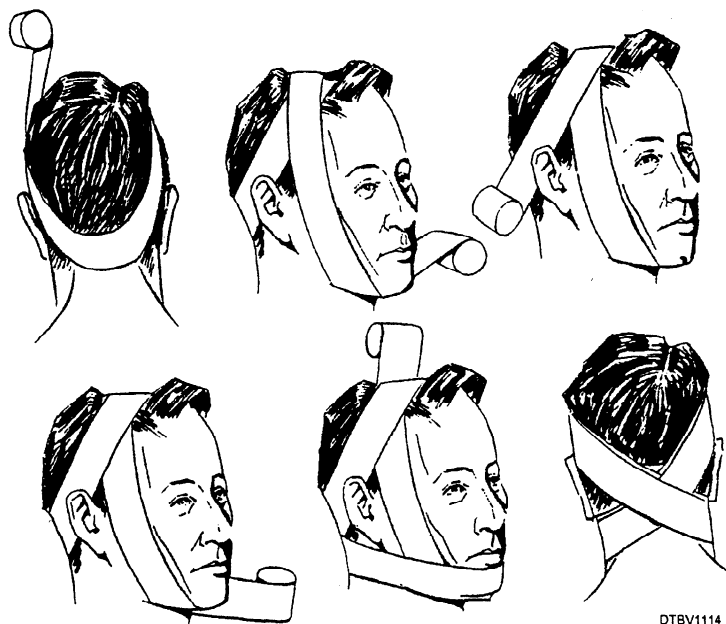
The dentist will treat this type of injury. Your responsibility is to prevent further injury and to lessen the pain while waiting for the dentist. A person who has a fractured jaw may suffer serious interference with breathing. One of the most important phases of emergency care is to clear the upper respiratory passage of any obstruction. Fractures are usually the result of a high-velocity accident (e.g., the face striking the dashboard of a car). Of all the facial bones, the nasal bones, followed by the mandible, are the most frequently injured.

Less common is a fracture of the maxilla. It can be distinguished from a mandibular fracture because the fractured maxilla will cause severe malocclusion consisting of an open bite. The face will also look elongated. Both the mandible and maxilla fractures are treated in the same manner until a dentist arrives.

Symptoms

Symptoms for fractures of the mandible and maxilla may include some of the following:

- Difficulty in breathing, talking, eating, or swallowing
- Pain when the mandible or maxilla is moved



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Figure 6-8.—Bandaging to immobilize both mandible and maxilla.

An inability to move the mandible or maxilla

Bleeding from the gums and around the teeth

A complaint from the patient that the teeth do not meet right

A complaint that the lower lip is numb (mandibular fracture)

Signs

Upon examination you may observe:

- Facial swelling
- Abnormal occlusion
- Fractured bones on dental radiographs ordered by the dentist

- Abnormal movement of mandible or maxilla

Treatment

Emergency treatment for fractures of the mandible and maxilla may include performing emergency treatment guidelines and the following:

- Reporting the patient's condition to the dentist.
- Immobilizing the injured area by applying an elastic bandage as shown in figure 6-8. Ensuring that you have a pair of scissors standing by to cut the bandage off if the patient starts to vomit or has respiratory difficulties.

Applying ice packs to reduce swelling of the injured area and to lessen the pain.

